Septic Tank Systems Installation And Maintenance

Septic tank systems are very much like people. They need periodic check-up and proper care to remain healthy and function properly. Also like humans, they must have a proper diet and cannot be overindulged without the homeowner suffering dire consequences (repair or replacement).

Care

Often overlooked or neglected is the fact that a septic tank system should have a regular check-up to prevent problems. The septic tank traps the solids in the wastewater and should be checked to determine whether or not it is time f or it to be pumped out. The inspection port should be opened and the baffles (internal slabs or tees) should be checked to ensure that they have not been damaged since the last check-up (see Figure 1).

The absorption field should be checked for sogginess or flooding, which indicates improper drainage, a clogged system, or excessive water use. The entire area containing the system should be checked for damp or soggy areas or odors, indicating a leak in the system.

A properly designed septic tank system will have a septic tank with sufficient space to accumulate solids for several years. When the level of solids fills too much space in the tank, the wastewater has less time to settle properly and too many solid particles flow into the absorption field. If the tank is not periodically pumped out, this will eventually clog it to the point where a new field will be needed.

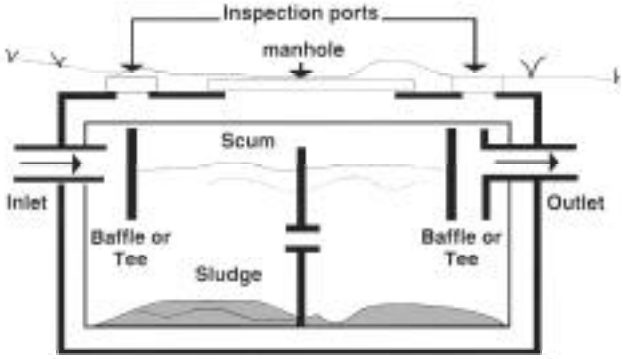

Figure 1. Cross Section of a Two Compartment Septic Tank

The Septic Tank

How often you need to pump the solids out of your septic tank depends on three major factors First is the size or capacity of the tank itself. If more people are living in the home that when the system was installed, or if new high water use technologies such as a hot tub or whirlpool are not in use, then the capacity may be too small. It would then be necessary to pump out the system more frequently. Too large a system should not be a problem. It simply means you have to empty the solids less often.

The number of people in the household is also related to the second factor, the flow of wastewater. Obviously, the more people, the more water will flow through the system.

The third factor for determining how often you must pump the solids out of your septic tank is the volume of solids in the wastewater. If you have a garbage disposal, for example, you will have to pump out your system more frequently than persons disposing of their food wastes through other means. If the occupation of someone in the household results in their having excessively soiled clothes, a construction worker or a coal miner, for example, the washing of these kinds of clothes may also add solids to you tank at a higher rate that normal.

Table 1 shows how often you need to pump out your sepic tank on average, given the size of the tank and the number of persons living in the household. These figures assume that is no garbage disposal unit in use. The use of a garbage disposal will increase the amount of solids in the holding tank by as much as 50 percent.

You can make a specific determination of when it's time to pump out the solids by occasionally checking the depth of solids and the level of scum buildup on top of the water in the tank. You should have your septic tank inspected regularly (every two or three years) by a professional and pump out the sludge when necessary.

Be sure that when the tank is pumped out, the contractor uses the manhole, which is usually located in the center of the tank, not the inspection ports.

Using one of the inspection ports could damage the baffles inside the tank (see Figure 1). Damage to the baffles could result in the wastewater flowing directly into the absorption field without the opportunity for the solids to settle.

Remember, commercial septic tank additives will not eliminate the need for periodic cleaning and may be harmful to the absorption field. Be sure the septic tank is completely emptied. It is not necessary to retain any of the solids to restart the digestive process. You do not need biological or chemical additives for successful restart or continuous operation of your septic tank system. Nor should you wash or disinfect the tank after having it pumped.

Tank Size gals.	**Household Size** (number of people)					
	1	2	3	4	5	6
500	5.8	2.6	1.5	1.0	0.7	0.4
750	9.1	4.2	2.6	1.8	1.3	1.0
900	11.0	5.2	3.3	2.3	1.7	1.3
1000	12.4	5.9	3.7	2.6	2.0	1.5
1250	15.6	7.5	4.8	3.4	2.6	2.0
1500	18.9	9.1	5.9	4.2	3.3	2.6
1750	22.1	10.7	6.9	5.0	3.9	3.1
2000	25.4	12.4	8.0	5.9	4.5	3.7
2250	28.6	14.0	9.1	6.7	5.2	4.2
2500	31.9	15.6	10.2	7.5	5.9	4.8

Table 1 Estimated Septic Tank Pumping Frequencies In Years (source: Pennsylvania State University Cooperative Extension Service)

Absorption Field

An absorption field generally does not require any maintenance. However, to protect and prolong the life of the absorption field, follow these simple rules:

- Do not drive over the absorption field with cars, trucks, or heavy equipment.
- Do not plant trees or shrubbery in the absorption field area. The roots will get into the lines, plugging them up.
- Do not cover the absorption field with a hard surface such as concrete or asphalt. Grass is the best cover for the field. The grass will not only prevent erosion, but will help remove excess water.
- Divert surface runoff water from roofs, patios, driveways, and other areas from the absorption field.

Feeding

What you put into your septic tank system will have a direct effect on whether or not you have a healthy, long-lasting and trouble-free system. Your septic tank system is not a dispose-all.

Overfeeding

- Keep all toxic and hazardous chemicals out of your septic tank system. Even small amounts of paints, varnishes, thinners, waste oil, photographic solutions, pesticides, and other organic chemicals can destroy the biological digestion taking place within your system.
- Plastics, cat box litter, cigarette filters, condoms, tampons, sanitary napkins, paper towels, and facial tissues should not be disposed of in your septic tank system. These items quickly fill your septic tank with solids, decrease its efficiency. and will require that you pump out the tank more frequently. They will also clog the sewer line to the septic tank causing wastewater to back up into your home.
- Avoid dumping grease or fats down your kitchen drain. They solidify and the accumulation may contribute to blockage in your system.
- Homeowners may wonder about the need for septic tank additives. Many commercial chemical additives can actually harm the septic tank system while a number of studies are continuing on the possible benefits of biological additives. Additives are no substitute for proper inspection and maintenance.

The Diet

Another way to prolong the life of your septic tank system is to be conservative with your use of water. For example, up to 53 gallons of water are discharged into your system with each load of laundry. If several loads are done in one day, it can put considerable stress on your system. A better practice would be to space out your laundry washing throughout the week.

The new ultra low-flush toilet uses between 1 to 1.6 gallons of water and will provide a 30 percent water savings. Low-flow faucet aerators on sink faucets and low-flow showerheads will save additional water. **Fix all leaks immediately**.

Following these simple rules regarding the maintenance and operation of your septic tank system will keep your problems to a minimum. It is really not a complicated or sophisticated system. A minimum amount of care will result in many years of trouble-free operation.

Adapted from information provided by:

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